Tree Thinning Saves Lives and Property!

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Commencing in 1996 after the Dome fire emergency, LANL began thinning trees and reducing fuels around key facilities to reduce the threat of a catastrophic wildfire.


Tree thinning on LANL property


LANL thinned forest - 60 trees per acre

LANL's forest management objective is to have a diverse forest structure (in regard to tree sizes, age classes, and densities) present in a mosaic pattern with a herbaceous and grass understory that is resistant to high-intensity wildfires and can be perpetuated in a healthy condition with selective cutting and periodic underburning.


LANL fuel break along highway 501


Unthinned Forest Service Land west of LANL (1000 trees per acre)


LANL forest that has not been thinned (400+ trees per acre)


LANL destroyed forest

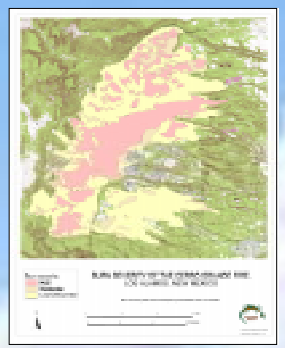

Damaged watershed above Los Alamos town site

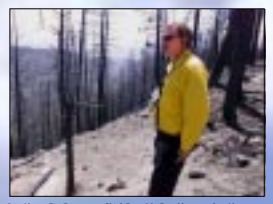
This condition emulates conditions that would exist under a natural fire regime in which higher-frequency, low-intensity surface fires kept the fuel load and tree density low. The treated areas appear more park-like with an increase in the diversity of shrubs, herbs, and grasses in the understory. The desired end-state forest conditions would fall within the following parameters:

- Individual tree crowns would be separated by a distance of about 10 to 25 ft (3 to 7.6 m).
- Tree group crown would be separated by a distance of about 40 ft (12 m) from each other.
- Tree density would be about 50 to 150 trees per ac (20 to 60 trees per ha).
- Canopy cover would be between 40 percent to 60 percent of the project area.
- Ladder fuels would be removed.
- Ground fuels would not exceed 4 tons per ac (1.5 t/ha).
- The majority of trees to be removed would be 9 in. (22.4 cm) in diameter breast height (dbh) or less.
- Some trees 12 to 16 in. (29.5 to 40.6 cm) dbh may be removed to achieve the desired spacings.
- Fuel breaks would be developed in about a 200-ft (60-m) radius around buildings using a tree spacing of about 20 ft (6 m).
- Diseased, infected, or weakened trees would be preferentially removed during thinning treatments.


Fuel break at TA-59, ESH-DO

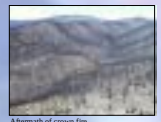

Unthinned forest at TA -53




Los Alamos Fire Department Chief Doug MacDonald surveys Los Alamos Canyon where fire funneled down into the town of Los Alamos, NM

Thinning consists of mechanically reducing the density of understory vegetation and trees by selective cutting. Understory thinning removes select woody vegetation, fallen trees and limbs, and low-growing tree limbs that could act as so- called "ladder fuel" to carry a surface fire upward into the tree crowns. Tree thinning removes select trees to interrupt the continuity of the forest canopy and, consequently, the potential for a crown fire to spread. Trees selected for thinning would be marked at least 6 in. (15 cm) above the ground and on the side away from trails or potential public viewing areas. Remaining tree stumps would be 6 in. (15 cm) or less tall. Large, fire-resistant species of trees, e.g., ponderosa pines, would be retained to increase the fire resistance of the forest.


Low fuel load (4 tons per acre) =Low intensity ground fire


Aftermath of crown fire


High fuel load (25+ tons per acre) = high intensity crown fire

For example, the forests surrounding the Weapons Engineering Tritium Facility (WETF) and TA-54 facilities were mitigated in 1999 for wildfire prevention using the above mentioned parameters with the following results:

WETF
pre-treatment wildfire rating "moderate"
post treatment wildfire rating "very low"

TA-54
pre treatment wildfire rating "moderate"
post treatment wildfire rating "low"


Undamaged forest at WETF

The Cerro Grande fire approached both facilities, and both facilities received no physical damage as a direct result of tree thinning and surface fuel reduction. The fires remained on the ground, and the Los Alamos Fire Department was able to control them. In addition, the fire intensities experienced at LANL, in general, from the Cerro Grande fire, were significantly lower than those experienced by the Santa Fe National Forest.


Total tree stand replacement on LA mountain, Los Alamos, New Mexico


Cerro Grande fire approaching LANL, Los Alamos, New Mexico

The Cerro Grande fire consumed about 42,869 acres and covered parts of Bandelier National Monument, Santa Fe National Forest, Los Alamos County, Santa Clara Pueblo, San Ildefonso Pueblo, and the Los Alamos National Laboratory. The fire destroyed 235 homes and forced the evacuation of 25,000 residents of Los Alamos and surrounding communities. Total cost for firefighting and cleanup are expected to exceed $1 billion dollars. Even though the Cerro Grande fire is finally out, we need to continue our efforts in thinning the remaining overgrown forests and reducing fuels to prevent another catastrophic fire in the future. Don't let history repeat itself!


Unthinned forest next to a former residence in Los Alamos, New Mexico


Unthinned forest and neighborhood demonstrating the randomness of fire

Poster design by Rhonda Robinson